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USSR Report

MILITARY AFFAIRS

(FOUO 1/80)

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CONTENTS

SOVIET COMMENTS ON U.S. NUCLEAR FORCES

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 7, 1979 signed to press 9 Jun 79 pp 7-13

[Article by Maj Gen V. Pestrov: "U.S. Nuclear Forces." Passages enclosed in slantlines printed in boldface.]

[Text] A magnificent ceremony of the change in administrations occurs every four years in January on Capitol Hill in Washington, capital of the United States. Democrats are leaving the White House, giving up powers to the Republicans, or vice versa.

The rank-and-file American primarily connects this event with a hope for obtaining employment, raising his standard of living or cutting the burden of military expenditures, about which the future presidents declare so reassuringly in their pre-election speeches. And each time working America has to be disappointed. Promises become empty phrases soon after the candidate becomes president. In his very first message to Congress on the national budget for the upcoming fiscal year the president usually no longer mentions a reduction of military expenditures by $5 or $7 billion, but, the contrary, declares his resolve to continue to build up the U.S. military potential.

For many years now the officials in Washington have not ceased to juggle such complicated (at first glance) expressions as the "strategic triad," strategies of "massive nuclear retaliation" and "flexible response," "general and limited nuclear wars," "surprise and preemptive nuclear strikes" and so on. But no matter how these expressions have changed or have been supplemented, their essence remains the same--a continuous improvement in nuclear weapons and a further unwinding of the spiral of the arms race.

The U.S. military-industrial complex is the initiator of such a dangerous course. Its representatives hold a leading position in legislative entities and make decisions involving the approval of constantly growing requests by the Pentagon. These forces also exert constant pressure on the administration by persistently shoving it onto the slippery path of "power" politics.

There are frequent instances where U.S. militaristic circles also succeed in influencing foreign policy decisions being made by the administration on fundamentally important international problems. Efforts of the militarists now are concentrated on attempts at disrupting the Treaty on a Limitation of Strategic Offensive Weapons recently signed after lengthy and difficult talks between the Soviet Union and the United States. The militarists consider such weapons to be the primary means for carrying out their aggressive schemes.

This is not the first year the rapid growth in U.S. military preparations has occurred against the background of the so-called "growing Soviet threat" which they have created artificially. The Pentagon and certain U.S. officials set this argument in motion each time it is necessary to cultivate the public and members of Congress in the necessary direction and attain the approval of new and higher military appropriations. Lately special organizations even have been created in the United States which have proclaimed a struggle against any limitation of nuclear arms at all as a "nationwide campaign." Official Washington justifies this by the fact that each person "in the free world" has the right to freedom of speech and action (even if this contradicts common sense and the spirit of the times--V.P.).

Facts convincingly show that throughout the postwar years American politicians have attempted at any cost to make more and more spurts in the arms race and attain military superiority over the Soviet Union no matter what. In so doing, special emphasis has been placed on military might and the need to maintain the U.S. strategic potential at an appropriate level. But to maintain does not mean to build up. With regard to the United States, we are speaking specifically about a build-up. As the American press has noted, the number of strategic nuclear warheads in the United States rose 66 percent in the period from 1962 through 1976, and since May 1976 it has been increasing through the rearming of ground-based strategic missile forces with modern Minuteman-3 missiles and strategic submarines with the Poseidon C-3 missiles, the payloads of which are equipped with multiple warheads. It has been learned from statements by Pentagon representatives that over the last ten years the United States has deployed over 1,000 missiles with warheads of the MIRV [Multiple Independently Targetable Reentry Vehicle] type and thus has almost quadrupled the total number of strategic nuclear warheads. As a result, according to the admission of American political figures, the United States has created a nuclear arsenal of stunning dimensions numbering over 30,000 nuclear weapons, of which over 9,000 are strategic.

Just what is the U.S. "strategic triad" and what are the directions of its further development?

The foreign press has reported that strategic offensive forces have around 2,200 nuclear weapons delivery platforms, including 1,054 intercontinental ballistic missiles [ICBM's], 41 nuclear-powered submarines [SSBN's] with 656 ballistic missiles, and over 500 strategic bombers (of which over 100 aircraft are in reserve and in depots).

The first component of the "triad" are the /land-based strategic missile forces/ (the Titan-2, Minuteman-2 and Minuteman-3 ICBM's).

The Titan-2 missile was accepted into the inventory in 1962. It has a range of fire up to 10,000 km and is equipped with single-charge nuclear warhead in the megaton range. There are 54 silo launchers of these missiles in the strategic forces. Their modernization program provides for an improvement in ground equipment, replacement of obsolete on-board and ground system assemblies, and an increase in the accuracy of fire.

The Minuteman-2 missile came into the inventory in 1965, has a range of 11,000 km and is equipped with single-charge nuclear warhead. At the present time the United States has 450 silo launchers with these missiles. Work has been under way at missile bases since 1977 on hardening the launchers (from 21 to 60 kg/cm^2) and they will be completed by the end of 1979.

The Minuteman-3 missile (operational range of 11,000 km) has been in the inventory since 1970 and is the most sophisticated ICBM in the U.S. nuclear forces' arsenal. It is equipped with a payload with three MIRV type dispensing nuclear warheads. There is a total of 550 silo launchers with such missiles. The Minuteman-3 missile systems were modernized from 1974 through 1977 in order to harden them against nuclear bursts and equip the missiles with a remote data input system allowing the ICBM to be retargeted to fixed ground targets of opportunity in 36 minutes (this previously required up to 24 hours). The American press has reported that all 550 Minuteman-3 ICBM's now can be retargeted in 10 hours (instead of 21 days). Work also has been done in recent years to increase the accuracy of the Minuteman-3 (from 400 to 200 miles). According to Pentagon plans, a new MIRV type payload is being developed for this missile (three nuclear warheads with higher accuracy and a yield of 400 KT each) and is to be accepted into the inventory in 1980 (it is planned to equip 300 ICBM's with it).

All the above missiles are included in the strategic on-call forces.

The land-based strategic missile forces are organizationally part of the U.S. Air Force SAC [Strategic Air Command] and are placed in nine missile wings (three Titan-2 ICBM wings and six Minuteman-2 and 3 wings).

The Minuteman ICBM wing has three or four squadrons of 50 ICBM's each (there are 150-200 missiles in a wing). A squadron has five detachments, each of which has ten silo launchers and one hardened launch control post located at a depth up to 18 m.

Judging from foreign press reports, the greater part of the ICBM's are ready for combat launch at any minute. A team of the launch control post duty shifts consists of two officers. The length of combat watch for one shift is 24 hours. In case the ground stations are disabled, missiles can be launched from air stations set up in the EC-135 aircraft modernized for

this purpose. It is emphasized that the U.S. on-call strategic missile forces are capable of sending up over 2,000 nuclear weapons with one launch.

Primary attention in the development of strategic land-based missile forces has been devoted to the creation of the M-X mobile ICBM, development of which has been under way since 1974. The missile is to have a throw-weight four times greater than the Minuteman-3 ICBM and a MIRV type payload (up to ten nuclear warheads with increased accuracy and yield). At the present time the Pentagon is studying several variants for basing the new ICBM's: a land variant in dispersed underground shelters (ten shelters for one missile) or deep reinforced concrete trenches (one ICBM in a 15-30 km trench); and an air variant with the ICBM accommodated aboard wide-fuselage transport aircraft (two in each aircraft), to be launched in the air or from land-based launch positions after the aircraft delivers the missiles to the launcher areas. It is also possible for the ICBM to be deployed in vertical silo shelters (up to 20 shelters for one missile).

In June 1979 the U.S. government decided on full-scale development of the M-X intercontinental ballistic missiles. According to a draft Defense Department budget for FY 1980, it is planned to spend $670 million on the M-X program. According to Pentagon plans, it is envisaged that 250-300 such missiles will be deployed, beginning with the latter half of the eighties. As the NEW YORK TIMES reports, the cost of this program is $30-40 billion.

/Nuclear-powered strategic submarines/ comprise the second component of the American "strategic triad."

A modernization program for existing SSBN's was fully completed in 1977, in accordance with which 31 submarines (496 missiles) were equipped with the Poseidon C-3 missiles with MIRV payloads (10-14 nuclear warheads each). The Polaris A-3 ballistic missiles with a dispensing reentry vehicle (three nuclear warheads each) remained in the inventory of ten SSBN's (160 missiles). The foreign press has reported that American nuclear-powered strategic submarines have a total of over 5,000 nuclear warheads aboard.

Organizationally the SSBN's have been placed in four squadrons (ten submarines each) which, as reported by the foreign press, are based in Holy Loch (Great Britain), Charleston (U.S. east coast) and Apra (island of Guam in the Pacific).

There are over 20 SSBN's constantly on combat patrol (lasting around 70 days for one submarine) in waters of the Atlantic, the Mediterranean and the Pacific. This is conducted at a depth of 30 m. Coordinates of the SSBN nuclear strike objectives are entered in the memory of computers, which work out the missile flight trajectories. During a submarine's movement under water, data on the SSBN's location constantly enters the computer from the on-board inertial system and corrections are made continuously to the computed flight trajectory of each of the 16 missiles and of each warhead.

At the present time the American military-political leadership is giving primary attention to a further improvement in the strategic nuclear-missile submarine system. Its modernization and development is proceeding along the following lines: refitting of existing SSBN's having the Poseidon C-3 missiles with the new Trident-1 missiles (with a range of fire around 8,000 km); construction of "Ohio" Class nuclear-powered strategic submarines and creation of the Trident-2 ballistic missile (with a range of 11,000 km).

The Pentagon's immediate plans call for refitting 10-12 existing SSBN's with Trident-1 missiles. The first submarine with such missiles, the "Francis Scott Key," will be commissioned by the Navy at the end of 1979 and will go out on combat patrol. Construction of a new type of SSBN began in 1976 (with a displacement of 18,700 tons and armed with 24 missiles with MARV maneuvering reentry vehicles with individual guidance). The lead SSBN "Ohio" was laid down at a shipyard in Groton in April 1976 and the "Michigan" was laid down in April 1977. Contracts have been concluded for building another five such submarines. According to current plans, the U.S. Navy intends to finance construction of 13 SSBN's (three submarines every two years) up to 1983. The cost of such a ship is $1.2 billion.

As Pentagon strategists believe, the presence of an SSBN with the Trident-1 missiles in the U.S. Navy, and in the future with the Trident-2, will allow them to conduct combat patrols in the immediate vicinity of the U.S. west and east coasts, i.e., in zones screened by the American antisubmarine defense system.

The first squadron of "Ohio" Class SSBN's (ten units) will be based at the Bangor Naval Base (state of Washington), which is presently being built. The submarines will patrol in the eastern part of the Pacific. Modernized SSBN's with Trident-1 missiles are intended for the Atlantic and will be assigned to a base in Kings Bay (U.S. east coast) now being created for them.

/Strategic bombers/ make up the third component of the American "strategic triad."

The foreign press has reported that the U.S. Air Force SAC has over 500 strategic B-52 bombers (including a reserve) and around 70 FB-111 strategic medium bombers. The American leaders view these aircraft as second echelon capabilities in a nuclear attack (the first echelon consists of the ICBM's and SSBN missiles).

Along with preparation of strategic aviation for accomplishing the primary mission of delivering nuclear strikes, considerable attention has been turned of late to preparing the B-52's for operations in the interests of naval and ground forces. For example, the B-52 bomber crews are practicing the following missions: conducting aerial reconnaissance in the Atlantic and Pacific; laying mines in strait zones; defense of sea lines of communication [SLOC] and giving direct air support to ground forces.

Efforts of American leaders presently are concentrated on increasing the combat capabilities of these bombers by creating and outfitting them with strategic cruise missiles (with a range of 2,500 km). It is planned to modernize 120-150 B-52's for this purpose, as a result of which they will be employed as platforms for strategic cruise missiles (up to 20 in each aircraft). It has been reported that the first squadron of such aircraft is to be made operational in strategic forces by the beginning of 1982.

It will be necessary to spend around $10 billion to create 3,000 cruise missiles and modernize the B-52 bombers, declared W. Perry, Director of Defense Research and Engineering of the U.S. Department of Defense.

Under contracts with the Pentagon, the American aviation firms of Boeing, McDonnell Douglas, and Lockheed began in May 1978 to study the possibilities for using wide-fuselage aircraft (the Boeing 747, DC-10, C-5 and others) as carriers of strategic cruise missiles. According to the estimates of specialists, each such platform will be able to take 60-80 missiles aboard. The refitting of 75 aircraft and manufacture of 4,800 cruise missiles for them is estimated to cost at least $15-16 billion.

Work also has begun to create a supersonic cruise missile which is supposed to penetrate a point air defense system more successfully.

The Air Force also is continuing research into creating a new strategic bomber of the nineties. As reported by the American press, U.S. military leaders are planning to develop one or two types of strategic bombers during the eighties which will replace the B-52 aircraft. The Defense Department is requesting $5 million for FY 1980 for preliminary design work on such an aircraft.

Plans for further development of strategic offensive arms being nourished by the Pentagon thus show that the U.S. militaristic circles intend to create new strategic systems by the beginning of the nineties which are to possess above all high accuracy in hitting hardened targets and which will be outfitted with more powerful nuclear warheads.

As American specialists emphasize, prospects for the development of U.S. strategic forces are aimed at implementing the so-called concept of a "counterforce nuclear strike." Its essence consists of the creation of capabilities for the United States to deliver a first "destructive nuclear strike" against the entire complex of the enemy's military and industrial installations for the purpose of preventing a retaliatory attack on his part.

Judging from foreign press reports, the actions of American nuclear forces are preplanned by the so-called SIOP (Single Integrated Operation Plan).

A joint strategic targets planning committee especially created in 1960 (at Offut Air Base, Nebraska together with SAC headquarters) is engaged in planning their combat employment. It has responsibility for the following primary missions: compiling a list of strategic targets against which nuclear strikes are planned; determining the sequence of their destruction and necessary resources and weapons for this; the centralized planning and organization of coordination of all U.S. nuclear forces and weapons. In addition, this committee compiles a list of strategic reconnaissance targets and elaborates integrated plans for conducting reconnaissance. As new data are received on targets for destruction, necessary corrections are made to the SIOP plan and there is a redistribution of U.S. nuclear attack forces and weapons.

This entity includes representatives of the Army, Air Force, Navy and Marines. It is guided in its work by U.S. government directives which the Committee of the Joint Chiefs of Staff provides it. The SIOP plan is approved by the Joint Chiefs of Staff Committee and then distributed to the appropriate commanders in chief. As reported by the foreign press, it is similar to the 1949 "Drop Shot" plan declassified in the United States--a plan for world war against the Soviet Union. Publication of the book "Drop Shot," published in New York in 1978, was not accidental and pursues the goal of intimidating the Soviet Union and also contributing to an undermining of detente. Both the old plan and its contemporary version were generated by the military clique and militaristic circles of the United States and are aimed at preparing for a world thermonuclear war. Confirmation of this is statements by Pentagon representatives that the leaders of the North Atlantic Alliance have returned repeatedly in recent years to the idea of employing nuclear weapons against states of the Warsaw Pact.

The U.S. nuclear arsenal also includes 7,000 nuclear warheads of American "forward based" weapons deployed in Europe. According to an estimate of the U.S. and NATO army command elements, these lethal weapons clearly are insufficient for them at the present time. As the NEW YORK TIMES recently reported, representatives of the military-industrial complex of the United States, Great Britain, France and the FRG have long been dreaming about creating a new intermediate range missile which could be deployed in Central Europe.

It has been noted that the draft of the U.S. military budget for FY 1980 is requesting around $350 million for accelerated creation of several types of nuclear weapons specially intended for deployment in Europe, particularly the Pershing-2 missile with increased flight range, a new intermediate range ballistic missile, and land-based and sea-based cruise missiles. Each of these systems will have a range of at least 1,500 km.

The plan for deploying these weapons systems in Europe was examined in the United States in April 1979 at a session of the NATO nuclear planning group with participation by secretaries of defense of the United States, the FRG, Great Britain, Canada, Italy, the Netherlands, Norway and Turkey.

According to a statement by U.S. Defense Department representatives, the land-based cruise missiles and the Pershing-2 missiles with a long flight range can be deployed in Western Europe as early as the first half of the eighties. In addition, neutron munitions will enter the inventory of U.S. Lance guided-missile subunits and nuclear artillery subunits in Europe. According to American press reports, the United States has begun implementing a program for development of nuclear weapons which is the most extensive in the last two decades. This continuous growth of nuclear potential without appropriate control will continue inasmuch as the public at large and a majority of the members of Congress still know nothing about the numbers and combat features of new types of American nuclear weapons, and almost all discussions and decisionmaking in this area are the special privilege of a relatively small group of people both within and outside the government (which already has become a historical tradition for the United States).

The WASHINGTON POST noted that if such concepts as the "triad," "defense on forward lines" and "a demonstration of might" continue to occupy a dominant position in American military policy, this could have serious consequences for all mankind and for the United States itself. Moreover, periodic intervention by the United States in various international conflicts could lead "to new and larger Vietnams or to nuclear catastrophe."

The question naturally arises in connection with the broad front of work begun in the United States to build up the nuclear potential: Who is threatening the United States and what can be the consequences of this course in the final account? President Lincoln in his time answered this question quite unambiguously and prophetically: "Where are we to expect danger? I will answer this: If such a danger should threaten us at some time, it will arise in our own midst; it cannot come from abroad. If it should be our lot to perish, this means that we ourselves will be our own gravediggers and executioners."

These words full of deep meaning also sound very current in our days, cautioning as it were certain circles of modern America which are placing reliance on nuclear forces.

6904
CSO: 1801

SOVIET COMMENTS ON U.S. PLANS FOR NUCLEAR WEAPONS

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 7,1979 signed to press 9 Jun 79 pp 21-23

[Article based on views of U.S. military specialists by Maj Gen V. Aleksandrov: "Planning the Use of Nuclear Weapons"]

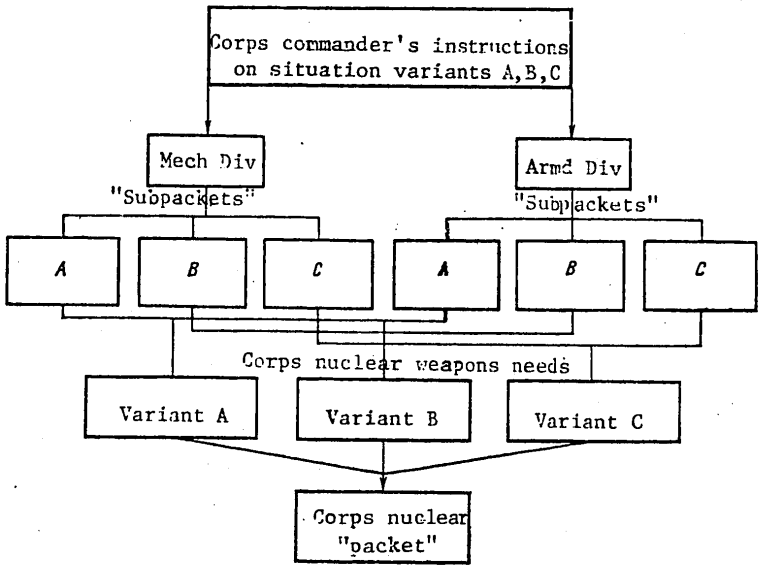
[Text] Cloaked in propaganda statements about the mythical "Soviet military threat," the United States and its partners in the NATO bloc continue to build up the military potentials of their countries. They are outfitting armies with modern weapons and combat equipment, improving the organizational structure of units and improving the level of troop field training. NATO strategists set aside no small place in the aggressive military preparations for elaborating principles of conducting troop combat operations under conditions of the employment of mass destruction weapons.

In the views of American military specialists, the employment of tactical nuclear weapons may have a substantial effect on all aspects of contemporary combined-arms warfare and cause significant losses in personnel and combat equipment, an acute shortage of the most necessary supplies and medical support items, and the disruption of command and control and communications systems. The entire course of combat operations may change abruptly as a result of this, since each side will attempt to deliver swift and destructive strikes.

As American regulations note, the success of employing nuclear weapons will depend to a significant extent on how much the enemy has been caught unawares or has been led astray with regard to true intentions on how decisively these weapons are used. Therefore it is considered necessary to train personnel in peacetime how to employ these weapons as well as in the principles of protection against their destructive effects, and to organize the system of command and control and logistical support in an appropriate manner. In organizing combat operations with the employment of coventional weapons, U.S. Army manuals and regulations require parallel and detailed planning of the use of nuclear weapons (in a first or second strike) in strict conformity with the instructions of the superior command element. Plans which have been elaborated and approved must be updated and commanders at all levels who have the right to submit requests for employment of such weapons are obligated to constantly foresee the possibility of their employment during the conduct of nonnuclear combat operations.

In planning the use of nuclear weapons it is recommended that targets be selected properly; that a determination be made of the means of destruction, time of attack and duration of effect of the nuclear weapons; and that provisions be made for limiting the accompanying damage. American specialists consider the primary targets for destruction by tactical nuclear weapons to be enemy troop groupings on the battlefield, means of nuclear weapons delivery, reserves, primary second echelon units, field and air defense artillery, control points and logistical support points. So-called corps nuclear "packets" and division "subpackets" are elaborated during the planning. They are considered the basic documents providing for the employment of this barbarous weapon. These "packets" together encompass almost the entire complex of nuclear weapons allocated to a combined unit (formation) for a specific operation, since they detail the number of weapons and their yield, delivery means, and the time and duration of possible employment in specific areas and against specific targets.

The duration of a nuclear strike depends on the need for reliable suppression of an enemy who has penetrated defenses or of an enemy grouping which hinders the successful development of an attack.



Procedure for elaborating the corps nuclear "packet" (variant)

The division is the lowest echelon to formulate its nuclear "subpacket." Its preparation begins the moment the division commander receives instructions from superior headquarters. In the instructions the corps commander clarifies variants of combat operations which will require the use of nuclear weapons. He precisely defines the situation regulating a need for submitting a request for authorization to use the weapons, evaluates possible results of effects on the enemy, and points out criteria for precluding accompanying damage and other limitations. A special working agency--the fire support coordination center--is engaged in immediate elaboration of a separate "subpacket" for each tactical situation variant established by the corps commander, and it does so in close coordination with operations sections of division and corps staffs (see sketch).

As American regulations note, the methodology for drawing up the document basically comes down to the following. With the beginning of work, the chief of the division's military and civil administration section informs the center of the "exclusion" scheme, indicating the boundaries of objects against which the use of nuclear weapons should be avoided, while the intelligence officer submits a map of enemy combat formations down to and including the company. On receiving the necessary data, officers of the operations section of the fire support center draw up an "exclusion" overlay. Outlines of the boundaries of areas with radii of accompanying damage are drawn around each target where it is desirable to avoid destruction (one for each nuclear weapon of different yield at the division's disposal). This scheme is made known to all agencies engaged in selecting aiming points.

After placing the "exclusion" overlay on the map of enemy combat formations, officers of the fire support coordination center plan the yield of the nuclear weapon and choice of delivery means. Weapons are selected so that the means of their delivery, their yield and type of burst provide for maximum destructive effect and limitation of accompanying damage prescribed by the corps commander. The "subpacket" planned in this manner for each variant of a tactical situation prescribed by the corps commander is estimated from the standpoint of its sufficiency for performing a combat mission. This evaluation is performed by applying templates with radii of destruction of selected weapons on the map (sketch) with data from the "exclusion" overlay and enemy combat formations transferred to it. After this it is sent for approval to the corps fire support coordination center, where an analysis is performed of all "subpackets" submitted by the divisions and a conclusion is drawn as to corps requirements for nuclear weapons and munitions, i.e., its nuclear "packet" is compiled.

Data contained in the nuclear "packet" are updated constantly during combat operations. Certain aiming points can be shifted, the yield of a selected weapon may be reduced, or the delivery means and number of weapons may be changed by authorization of the corps commander and after coordination with the intelligence division. As the situation develops, the corps commander determines specifically which "subpacket" of a division (divisions) can be used at a given moment to accomplish the missions assigned him.

Judging from foreign press reports, U.S. Army regulations state that the nation's military-political leadership makes a decision for shifting to the use of nuclear weapons based on the character of combat operations. At the same time it is emphasized that their use at the tactical level usually should be of a limited nature (in number of weapons and the area of delivery of the strikes) so as to prevent an immediate escalation of a limited nuclear war in a theater of military operations to a strategic nuclear war. It is recommended that undesirable side effects be reduced to a minimum by careful selection of targets, of the yields of nuclear weapons and of their delivery means. Provisions also are made for safety measures, the procedures for notification of friendly troops, and duties of persons responsible for estimating the situation after the employment of nuclear weapons.

These are some of the views of American military specialists on planning the use of nuclear weapons. U.S. Army regulations emphasize that certain circumstances may arise under "specific conditions" where the United States is first to employ these weapons. This obligates the personnel of our Armed Forces to be always in constant combat readiness.

6904
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SOVIET COMMENTS ON ACCIDENT RATE IN U.S. AIR FORCE

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 7, 1979 signed to press 9 Jun 79 pp 47-49

[Article by Maj V. Vladimirov: "The Accident Rate in the U.S. Air Force"]

[Excerpts] The foreign press notes that the American Air Force is losing a significant number of costly aviation equipment and personnel as a result of accidents in flight and on the ground. The losses are figured in hundreds of millions of dollars annually. In analyzing the accident rate in the U.S. Air Force, the American bulletin AEROSPACE DAILY reports that in the period from 1972 through 1976 alone 459 aircraft were lost for the above reason. This comprises over 42 percent of the total number of new aircraft received by units in this same period (Table 1) [table not reproduced].

Disturbed by the high accident rate in its subordinate units and subunits, the U.S. Air Force command is devoting much attention to steps to reduce it. A special safety service headed by the Air Force Inspector General works on these problems. He is directly responsible for development and practical implementation of measures for reducing the accident rate. The Inspection and Flight and Ground Safety Center (Norton Air Force Base, California) is subordinate to him. In addition, there are flight safety divisions and sections as part of the staffs of air command elements, air forces, divisions and wings, as well as non-T/O&E flight safety officers from among flight personnel in air squadrons.

Specialists of this service collect and process data on preconditions for flying accidents. They take part in the investigation of accidents and disasters, analyze the data obtained, and elaborate and monitor the observance of appropriate recommendations and rules. Uniform terminology, concepts, rules and the operating methodology of safety service specialists have been developed to increase the precision, efficiency and effectiveness of its work in the United States.

As the foreign press reported, a new system for classifying flying accidents was instituted in the U.S. Air Force on 1 January 1977. The cost of the physical loss (in dollars) as well as losses of personnel and working time

were made its basis. According to this sytem, all flying accidents are subdivided into four groups:

A--Serious flying accidents resulting in the destruction of an aircraft where the total cost of the physical loss exceeds $200,000 or where there are human victims;

B--Accidents which led to physical losses from aircraft damage totaling $10,000-200,000 and to personnel injuries;

C--Damages where the physical loss is in the range of $250-10,000 or where a work day has been lost as a result of personnel injury (illness);

D--Damage with physical losses of less than $250, but which led to a limitation of personnel activities because of health.

In addition to flight accidents, there are a large number of ground accidents in the U.S. Air Force which lead to losses in costly combat equipment and weapons and to human losses. In investigating the status of the accident rate on the ground, the American press cites the following data: Around 3,400 service personnel and over 4,500 civilians died or were injured in the period from 1972 through 1976. This is explained primarily by improper handling of missile weapons and ammunition. The press notes that during 1976 there were 11 serious accidents and 245 emergencies in the U.S. Air Force on the ground just as a result of mistakes in handling weapons and ammunition, and 243 persons died in transportation accidents.

Considering all the above, the Inspection and Flight and Ground Safety Center is conducting an extensive program aimed at reducing the accident rate in Air Force units. One of the elements of this program is the forecasting of possible areas and causes of accidents in order to conduct preventive measures to eliminate them.

6904
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SOVIET COMMENTS ON MANNING OF WESTERN ARMIES

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 7, 1979 signed to press 9 Jun 79 pp 13-17

[Article by Capt 2d Rank G. Grachikov: "Principles of Manning Imperialist Armies"]

[Text] In their works on military problems, K. Marx and F. Engels, the founders of scientific communism, noted repeatedly that under the conditions of any exploiting sociopolitical system, the armed forces act as a tool for defense of the interests of the ruling class. They are intended to protect this system, put down demonstrations of the toiling masses against the exploiters and their orders, and wage wars for the sake of expanding their sphere of dominance.

Drawn back in an era of premonopoly capitalism, this conclusion fully preserves its significance even under present-day conditions. Moreover, it now has acquired special currency, since bourgeois ideologists noticeably have stepped up their efforts aimed at concealing the true class essence of armed forces of imperialist states; and they have created and are exaggerating in every possible way the myth of a certain "rebirth" of armies and the evolution of their social functions. They provide arguments for their conjectures to the effect that service personnel in capitalist countries presently are represented by all layers of society and so the army allegedly becomes a nonclass institution and operates in the interests of all layers of the population.

But it was V. I. Lenin who, in providing a rebuff to such assertions, emphasized: "An army can not and must not be neutral. To keep the army out of politics is the motto of hypocritical servants of the bourgeoisie . . . who in fact always have drawn the army into reactionary policy" ("Polnoye sobraniye sochineniy" [Complete Collected Works], XII, 113). The experience of imperialist states in employing their armed forces in the modern era serves as convincing proof that their class essence and missions have not undergone any changes. Regardless of their social composition, all bourgeois armies remain a tool for putting down the workers in these very countries of capital and a means for establishing an imperialistic diktat throughout the world.

An analysis of the primary trends in military organizational development in the largest imperialist states, the content of their strategic military concepts and the development of technical means of armed warfare leave no doubt that the resolution of the chief contradiction of modern times--that between socialism and capitalism--by armed means in favor of the latter remains the primary mission of bourgeois armies in the foreign political arena. At the same time the bourgeoisie is resorting more and more often to employing an army to fight the national liberation movement in developing countries in order to keep them within their sphere of influence, to direct their development along a capitalistic path and to place regimes welcome to imperialism in power.

It is understandable that in order to carry out their domestic and foreign political plans, the ruling classes attempt to have armies at their disposal which not only are well trained and equipped with contemporary weapons, but which also are reliable in a class sense. The bourgeoisie possesses a significant arsenal of means and methods for this purpose. It includes intensive "brainwashing" or, in other words, ideological conditioning conducted in an anti-Soviet, anticommunist spirit; a complex of repressive measures which is being improved constantly; and material bribery which corrupts the consciousness of the youth. The system of manning occupies far from the last place among these methods.

It is generally known that preference has been given to the principle of voluntary hire in manning the armed forces of imperialist states in recent years. Armies of the United States, Great Britain, Canada and Japan are fully hired at the present time. According to foreign press data, mercenaries make up 75 percent of the Danish Armed Forces, 70 percent in Belgium, 60 percent in the Netherlands and 50 percent in the FRG of the total number of personnel. In all these countries there is a clearly expressed trend for a reduction in the contingent of draftees through an increase in the number of mercenaries.

In the opinion of bourgeois military theorists, armies manned under the mercenary principle already have the advantage that the overwhelming majority of soldiers conclude contracts, the terms of which considerably exceed those established for drafted contingents. This in turn contributes objectively to a weakening of the ties of service personnel with the working layers of society and becomes an additional barrier on the path of a dissemination of progressive ideas among the soldiers. As the British press noted, all this allows the ruling circles to create a "closed class of soldiers with their own special views and their own way of life." It is also believed that over a lengthy period of service the volunteer becomes a good military specialist and an ideologically conditioned soldier, and that he acquires considerable experience of participating in exercises, and sometimes in combat operations.

Finally, it is also considered that in mercenary armies where a majority of rank-and-file personnel and NCO's view military service as a source of earnings, the command element can make wide use of the principle of material

incentives for an effective improvement in the qualitative make-up of troops. Money serves in mercenary armies not only as a stimulus for advancement along the service ladder and an improvement in professional skills, but also as an effective measure of punishment (monetary fines imposed on service personnel).

It is noteworthy that mercenarism as a method of manning armed forces defending the interests of exploiting classes over centuries bears a "supranational character," so to speak. Foreigners often were hired for a certain amount of pay to take part in predatory wars back in the times of slaveholding and feudalism. Even today mercenaries serve not only in national armies of capitalist countries, but are also used by international imperialism for protecting the last bastions of colonialism and giving assistance to reactionary forces and groupings in the developing countries of Africa, Asia and Latin America.

There is a network of stations for recruiting mercenaries into armies of racist regimes of the Republic of South Africa and Rhodesia existing in many large cities of West European states as well as the United States. Over the last 20 years paid killers from the United States, the FRG, Great Britain and Belgium have taken part in hundreds of punitive operations against the forces of national liberation in the Sudan, Nigeria, Zaire, Zimbabwe and Namibia. Many hundreds of these "war dogs," as the African press christened them, operated as part of military formations of UNITA [National Union for the Total Independence of Angola] and the FNLA [National Front for the Liberation of Angola]--reactionary groupings which have set as their goal the overthrow of Angola's revolutionary people's government. The press in the United States and some Latin American countries repeatedly has reported that American officers occupy a number of command positions in troops of the Nicaraguan dictator Somoza, who is attempting to remain in power by means of bloody terror against his own people.

Facts concerning the participation of foreign military personnel in actions being organized by the international reaction to suppress the national liberation movement serve to confirm the principle which states: It is all the same for a mercenary where, when and why he fights, just so he is well paid. And this psychology fully suits those who determine military policy in countries of the West.

With regard to the draft contingent, ruling classes of bourgeois society always have regarded it suspiciously. Mistrust in draftees rose noticeably in all imperialist armies after the failure of the U.S. military adventure in Vietnam. It is generally known that antiwar sentiments were widespread among soldiers of the American expeditionary corps which operated in Indochina. Unions and organizations calling for an immediate cessation of the criminal war were active among the troops. As aggression expanded, there was a growing number of soldiers who did not wish to be sent to Vietnam and who deserted from their units. During 1969 alone over 150,000 servicemen deserted from the American Armed Forces. The foreign press often reported instances where individual soldiers and entire subunits refused to carry out combat orders.

A study of this problem by Pentagon personnel specialists showed that servicemen called into the Army under the law on universal military service comprised the primary mass of deserters and participants in antiwar organizations. It is therefore fully natural that the war in Vietnam served as an additional impetus to a very rapid transition of the American Armed Forces to a mercenary principle of manning and forced the military-political leaders of other NATO countries to set a course for reducing the number of draftees in their own armies.

The poorest layers of the population, and primarily the unemployed youth, comprise the primary source for manning the armed forces of capitalist countries. In recent years the size of the army of unemployed in developed capitalist countries has not dropped below the 10 million mark, and over half is made up of young people up to 25 years in age. According to an admission by U.S. NEWS AND WORLD REPORT, the number of potential volunteers for the Army is in direct proportion to the level of unemployment: The higher the percentage of the unemployed populace, the more there are who desire to enter military service.

Lack of an opportunity to receive work and uncertainty about tomorrow leaves a significant number of young people with no other choice than to sign a contract with the armed forces. It is not by chance that advertising for the military service places stress on demonstrating the "advantages" of the Army, which "guarantees" full employment and gives young people an opportunity to receive a specialty needed in civilian life as well. Heads of military departments in the West spare no funds to attract young people into the army. For example, expenditures for these purposes in FY 1978 in the United States rose by almost 70 percent in comparison with FY 1974 (the year the Armed Forces converted to the mercenary principle of manning) and consisted of around $60 million.

But contracts are concluded with far from all who express the desire to serve in the army, but only with those who are considered trustworthy. According to bourgeois sociologists, an average of only two out of every five candidates are recruited into the army. Everyone registered in the Armed Forces is subjected to a thorough political check performed by special police agencies. In the United States this function is performed by the Federal Bureau of Investigation.

The action of the political filtration system does not let up at all with a volunteer's enrollment in the armed forces. An extensive complex of measures has been developed in each of the armies of bourgeois states to identify "undesirable elements for the army" and to combat them. For example, three forms of discharge ahead of schedule have been developed for such persons in the U.S. Armed Forces: "dishonorable," "undesirable" and "bad conduct." In each of these instances the persons being discharged are issued a document which practically precludes their obtaining work in state establishments in the future. Statutes presently existing in the U.S. Army give commanders the right to cancel a contract with "unsuitable" service

personnel. As reported by the American journal ARMY, an average of up to 40 percent of persons discharged from the Army ahead of schedule are persons who have not even served out the first contract.

The severity of selection rises substantially when soldiers are assigned to NCO positions and promoted to the corresponding ranks. In particular, in the British Armed Forces preference is known to be given to persons who have come on duty from militarized youth organizations of a reactionary sort, and only district commanders have the right to make promotions. In the U.S. Armed Forces special commissions set up at major headquarters review candidates for filling the lowest command positions and other positions and confer NCO ranks. Consideration is given here not only to the candidate's level of professional training, but also his "degree of loyalty," his zeal in service and "services to the Armed Forces."

The criterion of political reliability is observed strictly in manning the middle and higher command echelons, which are the primary conductors of the ideas and policies of ruling classes in the armed forces. Lenin's description of the officer corps of imperialist armies, which notes that "officers and generals for the most part belong to the class of capitalists or defend its interests" ("Polnoye sobraniye sochineniy," XXXI, 459) fully preserves its importance even today.

There are so many various obstacles in all capitalist countries on the path to officer ranks, especially the highest ones, that only the representatives of circles possessing actual power or considerable means are in a position to overcome them. Over 90 percent of the officer corps of the U.S. Armed Forces consists of representatives of the upper and middle layers of American society, i.e., it is manned primarily by products of the large and middle commercial-industrial bourgeoisie as well as the most prosperous and influential part of the intelligentsia and military families. Five percent of officers in the British Armed Forces come from the upper layers of British society, and the remaining 95 percent from the middle layers. Practically all officers in the ranks of colonel or general in the Bundeswehr are representatives of the exploiting classes. Such a situation also is typical on the whole for armies of the other capitalist states.

Military school graduates traditionally are considered to be the most reliable part of the officer corps in the class sense and its nucleus, inasmuch as access to these educational institutions practically is closed to representatives of the workers. For example, in Great Britain the absolute majority of those studying in the Sandhurst Military College, the Naval College (Dartmouth) or the Air Force College (Cornwall) are graduates of privileged closed schools of general education where the tuition exceeds the annual earnings of the skilled British worker.

A recommendation from a member of the American Congress is necessary as a minimum for entry into any of the three schools of branches of the U.S. Armed Forces. But even such a recommendation does not serve as a guarantee of entry. Judging from foreign press reports, 9,134 applications were made

to the Air Force Academy in Colorado Springs in 1976, but only 1,500 persons, i.e., less than 17 percent, were allowed to take examinations.

An individual political interview is held with each officer candidate in the FRG Armed Forces, and in addition he is obligated to submit a paper on a military-political topic. As the West German press notes, however, the road to an officer career ends here for 40 percent of the candidates.

It stands to reason that military schools are far from the only source of officer cadres for armies of capitalist states. The primary mass of officers are trained in military faculties of civilian educational institutions, in various short-term officer schools and in courses. A certain percentage of representatives of the working layers of the population ends up here. First of all, however, all of them usually complete service in junior officer ranks. Secondly, the entire tenor of army life forces them to be dedicated defenders of the capitalist system.

A necessary condition for advancement to the heights of an officer career in any of the contemporary bourgeois armies is obligatory training in various advanced courses, in command and staff colleges and in other educational institutions to which officers are admitted who have a specific period of service, a specific rank and, most important, who have positive comments on their political reliability. Preference in entering this training also is given to graduates of military schools, who later hold key posts for command and control of the bourgeois military machine.

The American journal MILITARY REVIEW wrote in this regard: "The impression is created that there is a certain mysterious mechanism in our Army which gives advantages to West Point graduates over all other officers in advancement to general ranks." As a matter of fact, there is nothing mysterious in the fact that it is this category of officers which becomes the "special elite," which grasps all primary levers of command and control of the Armed Forces. It has been the graduates of military schools who for many decades repeatedly have demonstrated their loyalty to ruling circles and acted as zealous defenders of the interests of capital.

It is noteworthy that in recent years the senior and higher officers are exerting an increasingly noticeable influence on the shaping of foreign and domestic policy of imperialist states. Being for the most part convinced anticommunists and reactionaries, they contribute to the fanning of a military psychosis in countries of the West, take an active part in the propaganda campaign to whip up the myth of the "Soviet military threat," and support any acts aimed at disrupting the relaxation of international tensions and continuing the arms race. Many of them are members of reactionary parties, military alliances and organizations or support their policies. For example, almost 50 percent of Air Force officers in the United States are members of the Air Force Association, which plays a noticeable role in disseminating ideas of militarism and antisovietism among the American populace. A majority of Bundeswehr officers are adherents of the reactionary

CDU/CSU [Christian Democratic Union/Christian Social Union]. According to data of the journal SPIEGEL, practically all of the senior command personnel and up to 40 percent of young officers are included among those sympathizing with these parties.

The increase in the role of generals, admirals and officers in the political life of bourgeois states is determined to a significant extent by the strengthening and expanding of ties and contacts between the officer elite and the largest imperialist monopolies, especially those specializing in arms production. This symbiosis of the reactionary militarists and big business is known to the entire world under the term "military-industrial complex." A system has taken shape and functions in all countries of Western Europe and the United States where higher and senior officers who retire assume positions on boards and the management of military corporations and in the state apparatus. In 1977, for example, around 70 retired officers and generals were appointed to various positions in the McDonnell Douglas Company, which is one of the largest Pentagon contractors. Each year over 1,000 former service personnel in the United States shift from the Armed Forces into big business.

The above facts show with all obviousness that the system for manning the armies of capitalist countries is being used by ruling circles as a powerful lever for ensuring the class interests of the bourgeoisie and preserving the armed forces as a subservient tool of world imperialism and reaction.

6904
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SOVIET COMMENTS ON NATO AIR BASES IN WEST GERMANY

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 7, 1979 signed to press 9 Jun 79 pp 52-56

[Article by Col A. Alekseyev: "The Airfield Network of the FRG"]

[Text] In its plans for military preparations, the leadership of the aggressive NATO bloc devotes much attention to increasing the effectiveness of employing the air force. Vigorous measures to improve the system of air bases are being conducted for this purpose in addition to a development of air force organizational structure, aviation equipment and weapons. Beginning in 1950 a majority of countries in Western Europe have been building new air bases at accelerated tempos and reconstructing airfields and civilian airports to bring their specifications into line with the requirements for basing warplanes presently in the inventory and of future types. A special role is given here to the FRG, where American, British, French and Canadian troops are stationed along with West German forces. Various military installations are being built on its territory to support their combat and everyday activities. The capabilities of the country's airfield network are being expanded to receive reinforcing air units of tactical air groupings in the Central European Theater of Military Operations as well as military transport aviation.

In conformity with NATO standards, major air bases and military airfields have as a minimum one runway from 2,400 to 3,000 m long and 30-60 m wide, taxiways, group and single aircraft hardstands, semiunderground or underground depots for ammunition, weapons and POL, a control tower, hangars, repair shops and other auxiliary and service buildings. Modern communications, radar and lighting equipment is being installed there to support aircraft flights in bad weather conditions day or night and in any season of the year. POL depots are hooked into the pipeline network in the Central European Theater of Military Operations for centralized, uninterrupted supply of fuel. The area of the average airfield is 4-5 km^2. The territory of an air base (airfield) usually is set off by barbed wire and chain-link fence and protected by patrols and posts.

As the foreign press reports, there are presently around 400 airfields of various classes and helicopter pads constructed in the FRG, of which over 60 are considered well prepared and suitable for basing practically all types of combat aircraft and military transports. According to estimates by foreign specialists, it is possible to accommodate around 1,500 aircraft here alone with dispersed basing, i.e., one air squadron (up to 24 aircraft) on each.

The existing air bases in the FRG are allocated in peacetime among national commands of NATO country air forces in the following manner: eight for the United States, four for Great Britain, two for Canada and 33 for the FRG (the table provides a description only of the primary air bases) [table not reproduced].

Airfields are unevenly located on FRG territory (see sketch) [sketch not reproduced], with a majority of the large, well-equipped airfields situated in the western and southern parts of the country. The primary grouping of tactical aviation is based on them. There are small airfields and helicopter pads in areas bordering on the GDR and CSSR on which U.S. and FRG army aviation is based.

Considering the possibility of delivering attacks against these installations, the Bundeswehr command element is preparing sectors of autobahns for dispersal of aircraft. According to the views of foreign military specialists, their use gives air forces greater capabilities for executing a concealed maneuver, increases the survivability of aircraft on the ground and facilitates the camouflage of airfields themselves.

A straight sector of autobahn 1,800-3,000 m long with an insignificant slope is chosen as a runway. The roadbed is expanded to 30 m and paved, and no dirt dividing strip is made. Aircraft hardstands are prepared on both ends of the chosen sector and distributing frames are installed for hooking up flight control facilities and illumination equipment. Small caponiers or pits for ammunition dumps or depots for storing POL under field conditions may be prepared near the runways. It is believed that the road sectors which are chosen should be at least 25 km from the primary air bases.

Tests (test flights) involving the participation of air force aircraft crews are conducted before the autobahn prepared as a runway is placed in operation so that the crews acquire necessary skills for performing combat operations under such conditions. The time for deploying an airfield depends on the make-up of support personnel and facilities being used and may vary from several hours to a day.

According to data published in the foreign press, 13 such sectors now have been prepared on FRG territory and it is planned to bring their number to 24 in the next few years.

An increase in the number of airfields which can be used for dispersing aviation also is being planned by lengthening short runways (1,200-1,700 m), installing arresting gear and emergency landing safety support barriers, and by using boosters for aircraft take-off.

According to the views of NATO specialists, VTOL or STOL aircraft such as the "Harrier" can use small field airstrips and graded areas which as a rule will be chosen on wooded terrain and camouflaged to resemble the surrounding landscape. It is planned to accommodate one flight of aircraft (3-4 aircraft) on such an airfield in wartime. It is planned to cover them on the hardstands with camouflage nets (the crowns of trees also may be used).

The problem of aircraft protection directly on the ground has acquired special importance abroad of late, since they are very vulnerable on open hardstands to destruction even by conventional weapons.

After analyzing the experience of the Arab-Israeli War of 1967, the air force command element of NATO member countries, including the FRG, concluded that there was a need to take steps to protect tactical aviation at its air bases. The western press reported that European countries allocated $420 million for construction of 1,600 reinforced aircraft shelters in Western Europe in 1971 as a supplement to the program for developing the NATO infrastructure. In subsequent years this program was adjusted toward a further increase in their number.

The most widespread standard aircraft shelter accepted in NATO is an arched frame consisting of corrugated steel panels. After being assembled, the frame is covered with high-strength concrete up to 60 cm thick. Dimensions of the shelter are: 30.5 m long, 14.6 m wide and at least 7.5 m high. It can accommodate only one aircraft (such as the F-4, F-15, "Jaguar" or F-104G). It takes approximately nine months to build such a structure.

In addition, two shelters of somewhat larger dimensions are being built at each airfield. They are intended for the performance of periodic technical servicing, routine maintenance, and servicing aircraft and their systems. If necessary they can serve to accommodate combat-ready aircraft, other aviation equipment or personnel.

Based on estimates by foreign specialists, the use of reinforced shelters ensures the safekeeping of aircraft chiefly against conventional means of destruction (aerial bombs, guided and free-flight air-to-ground missiles, and machinegun-cannon armament) with a probability of more than 90 percent.

FRG airfields also have open-type shelters and hangars. The former are made of protective reinforced concrete walls or by covering single walls with a layer of soil up to 5 m deep. They can only partially protect the aircraft in them from fragments of aerial bombs and the fire of machinegun-cannon weapons. The hangars are intended for servicing the aircraft.

Camouflage is among the other means for protecting aircraft at their bases. It includes camouflage painting of the runway, taxiways, aircraft hardstands and parking areas for service transport facilities. Office buildings, the control tower and shelters are painted the color of the surrounding terrain.

In addition to increasing the survivability of aircraft by the dispersal of air subunits, the use of shelters and camouflage of airfield structures, the command elements of the Joint NATO Air Force and the FRG Air Force are conducting measures to reinforce the air defense of airfields, especially against strikes by low-flying enemy aircraft. According to western press reports, all air bases in the FRG are screened on distant approaches by the "Nike-Hercules" and "Hawk" surface-to-air missile [SAM] systems. In addition, the "Bloodhound" SAM system has been deployed on the territory of British air bases. Positions have been prepared and batteries of the short-range "Chaparral," "Rapier" and "Roland" SAM batteries as well as 20-mm AA mounts have been deployed at many air bases and military airfields for protection against strikes by low-flying targets.

According to the estimates of foreign specialists, a well-developed airfield network has been set up on FRG territory which allows the NATO command to accommodate a rather powerful grouping of tactical aviation here and accept aircraft of U.S. military transport aviation during major movements of troops, combat equipment and other military cargoes. For example, during Exercise Reforger 10 held in 1978, the air bases at Ramstein and Rhein-Main were used for troop movements from the American Continent to Europe. The subunits which arrived were delivered from here by motor transport to American depots in West Germany containing heavy weapons and equipment.

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SOVIET COMMENTS ON TACTICS OF NATO ASW SHIPS

Moscow ZARUBEZHNOYE VOYENNOYE OBOZRENIYE in Russian No 7,1979 signed to press 9 Jun 79 pp 59-63

[Article based on views of foreign military specialists by Capt 1st Rank V. Kiselev: "Naval Forces: Operating Tactics of ASW Ships"]

[Text] Modern nuclear-powered submarines equipped with torpedoes, ballistic missiles and cruise missiles are capable of accomplishing a broad range of missions, from the destruction of warships and merchant vessels to the delivery of nuclear missile strikes against enemy territory. In the opinion of foreign military specialists, they will be the primary obstacle in the path of winning sea superiority, will create the greatest threat to sea lines of communications [SLOC] and will offer opposition to carrier forces and to PLARB [SSBN's]. This is why considerable attention is being given to the development and build-up of ASW forces and means in the overall system of aggressive military preparations of the United States and its NATO allies along with the building of a nuclear-powered submarine fleet. According to foreign press reports, these countries are improving the overall organization of ASW. They are preparing ocean and sea theaters of military operations, performing extensive research in the area of technical facilities for locating the underwater enemy, creating new models of ASW weapons and improving the methods and techniques for employing ASW forces and means.

In bringing together the entire complex of combat operations against submarines into the concept of "antisubmarine warfare," western military specialists note that ASW includes the destruction of submarines at basing points, along deployment routes and in areas of tactical employment, as well as the organization of immediate antisubmarine protection of warship forces and convoys. They emphasize here that delivery of strikes against enemy naval bases will merely reduce the probability of the underwater threat, but will not preclude it, since even before the beginning of a war the majority of submarines will be deployed at sea. For this reason it is planned to concentrate primary efforts of naval forces, and of ASW forces above all, on destroying submarines at sea on routes of deployment and directly in areas of combat operations.

It is deemed advisable to use all-arms ASW forces and means (nuclear-powered and diesel submarines, surface ships, ASW aircraft) to combat submarines in close coordination with the SOSUS fixed passive long-range sonar surveillance system.

The NATO military-political leadership views "antisubmarine warfare" in two aspects: warfare against submarines equipped with ballistic missiles, and warfare against submarines (armed with torpedoes and cruise missiles) which threaten surface warship forces and convoys.

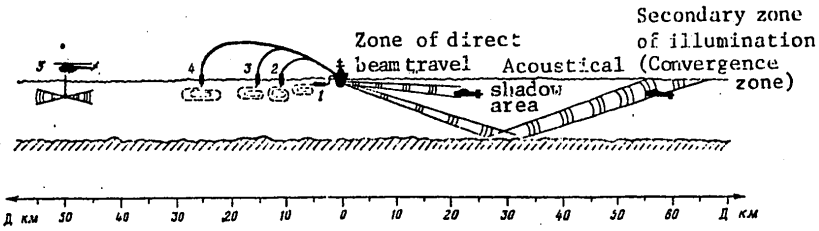
In organizing warfare against submarines which carry ballistic missiles, the primary mission of ASW forces is considered to be extended tracking of a maximum number of these submarines in peacetime in order to destroy them with the beginning of a war. In the opinion of foreign naval specialists, concealment of ASW force operations is the deciding condition for attaining this goal. But at the present time surface ships do not have this quality and so their participation in warfare against submarines which carry ballistic missiles is limited.

The article examines the operating tactics of ASW ships against submarines threatening warship forces and convoys. Judging from western press reports, the organization of warfare against them provides for a combination of principles of point defense and area (zone) defense.

An important role in this warfare is played by surface ships, primarily destroyers and frigages, although means of detection and destruction of submarines are installed on ships of other classes as well.

Foreign military specialists place ships of the following classes among the most modern destroyers and frigates: "Spruance," "Oliver H. Perry" and "Knox" (United States); "Sheffield," "Amazon" and "Broadsword" (Great Britain); "Georges Leygues," "Tourville" and "Aviso" (France); "Iroquois" (Canada); "Kortenaer" (The Netherlands); and "Haruna" and "Tachikaze" (Japan). Their armament includes URO [guided missile weapons] systems ("Exocet" and "Harpoon"), ZURO [antiaircraft guided-missile weapons] systems ("Standard", "Sea Sparrow," "Sea Dart," "Crotale," "Seacat" and "Seawolf"), PLURO [antisubmarine guided missile] systems ("Asroc," "Malafon" and "Ikara"), general-purpose gun mounts (76, 100, 114 and 127-mm), automatic air defense mounts, antisubmarine torpedoes (Mark 43, 44, 46, L3 and 5) and antisubmarine helicopters ("Lynx," "Sea King," "Sea Sprite," "Wasp" and "Wessex"). They are equipped with various types of sonars (AN/SQS-23, -26, -35, -53, -56, DUBV-23D, -43B and so on). The capabilities of surface ships to detect and destroy submarines are shown in the sketch (by range).

The primary mission of ASW forces in point defense is to hinder submarines in employing missile and torpedo weapons against forces of surface warships, amphibious warfare detachments and convoys. It is accomplished through the actions of escort forces (shore-based and deck-based ASW aircraft, surface ships, ship-based ASW helicopters, and submarines) in seeking out and



Capabilities of surface ships to detect and destroy submarines (by range): 1--Mark 46 antisubmarine torpedo; 2--"Asroc" PLUR; 3--"Malafon" PLUR; 4--"Ikara" PLUR; 5--ASW helicopter

destroying enemy submarines in the area occupied by the ship force. Surface ships are used here primarily as close-in protection forces, while ship-based ASW helicopters operate in the close antisubmarine escort zone.

The formation of escort ships in cruising order usually is circular, which allows the creation of a dense sonar surveillance zone oriented relative to the center of the order. As a rule, they are situated at a distance from each other equal to 1.75 times the effective range of sonar facilities. The escort may be reinforced on probable avenues of submarine threat (these are considered to be bow sectors in the direction of force movement).

Ships perform a search for submarines with sonar in an active mode, while ASW weapons are kept in readiness for immediate use.

Ship-based ASW helicopters operating as part of the close antisubmarine escort forces perform a search for submarines along the force movement route within limits of a designated strip of the water's surface. They are usually up to 40 nm from the center of the order. In order to ensure continuous surveillance of the water medium, a determination is made of the periodicity for lowering helicopter sonars with consideration of the designated speed of the force and points (stations) are calculated along the flight route at which the sonar is to be lowered. The distance between stations usually is equal to 1.25-1.6 of the effective range of the dipping sonar.

On detecting a submarine, a close-in protection ship (or helicopter) reports contact with her to the force command center and continues to track the target. The commanding officer of this force makes the decision for subsequent actions against the detected submarine, which usually include the following. The force being escorted makes a simultaneous turn away from the submarine, placing her on angles on the stern, from which an attack is considered ineffective. One or two of the nearest ships or a ship and helicopter are assigned from the escort forces to assist the ship (helicopter) which established contact with the submarine. Forming a ship, helicopter or composite hunter-killer group (PUG), they proceed to the area where the target is assumed to be located.

The ship (helicopter) which detected the submarine reports data on the relative position of the target (bearing and range) as well as her course and speed to the PUG forces. In case they establish a firm contact with the submarine, she is attacked, but if contact is lost a search is made.

The objective of ASW forces' operations in an area defense (zonal defense) is to prevent the penetration of submarines into specific areas of ocean and sea theaters of military operations. This mission is accomplished by deploying all-arms forces (shore-based patrol aircraft, submarines and surface ships) on antisubmarine barriers. According to the foreign military press, the Greenland-Iceland-Faeroes-Shetlands-Norwegian West Coast antisubmarine barrier is an example of a zonal defense. Its basic purpose is to hinder the penetration of enemy submarines into the North Atlantic.

As the western press notes, contemporary antisubmarine barriers consist of an interconnected complex of systems for the detection, classification, identification and destruction of submarines. They include fixed sonar surveillance systems, all-arms ASW forces as well as minefields.

Surface ships on these barriers usually are assigned individual sectors within which they conduct a search for submarines independently (as part of ship hunter-killer groups--KPUG) or in coordination with shore-based patrol aircraft. The methods (schemes) of the search are chosen by KPUG commander with consideration of the hydrological conditions of the sea and the presumed number of submarines penetrating through the barrier sector monitored by the surface warships. The ships of the KPUG usually are disposed on a line abeam (quarter line of bearing) at a distance from each other equal to 1.5-1.8 of the effective range of sonar facilities being used in the active mode.

Helicopters of the KPUG perform a search for the underwater enemy either in a common search formation with the surface ships or in a separate area as part of a helicopter PUG. In the former instance they may be located in front of the course of the KPUG or on its flanks.

British specialists believe that when helicopters employ dipping sonar in the active mode the time for survey of the underwater environment should be 2-3 minutes and the distance between stations should be 1.25-1.6 of the effective range of the sonar. In order to determine target movement elements, the time it is observed is increased to 10 minutes.

The helicopter hovers at each station at a height of 10-15 m over the sea surface, surveys the water environment for 2-3 minutes, and then flies to the next station. The search is conducted on a straight course or a zigzag (an angle of turn up to 45°). The average search speeds with a distance between stations equal to 1.6 of the sonar range, with a 20 percent overlap of adjacent surveillance zones and a helicopter speed of 120 knots, are given in the table.

Relationship of average submarine search speed by a helicopter to the operating radius of a dipping sonar and search time at each station

1	2	3	4	5	6
1.83 (10)	1,6	0,8	3,0	3,8	25
3.66 (20)	3,2	1,6	3,2	4,8	40
5.5 (30)	4,8	2,4	3,5	5,9	49
7.32 (39.5)	6,4	3,2	3,7	6,9	56
9.18 (49.6)	8,0	4,0	3,8	7,8	61
10.97 (59.3)	9,6	4,8	4,1	8,9	64
14.0 (75.7)	11,2	5,6	4,3	9,9	67

KEY: 1. Dipping sonar range, km (cables)
2. Distance between stations, nm
3. Flight time between stations, minutes
4. Search time at each station, minutes
5. Total cycle time (flight + search), minutes
6. Average search speed, knots

As the foreign press notes, a helicopter with a sonar having an operational range of 5 km (27 cables) and dipping it at an interval of 5 minutes is capable of investigating an area around 1,000 km^2 in one hour. If the sonar operating range is 3 km (16 cables) and it is dipped every 5 minutes, the area is reduced to 300 km^2. In this instance a group of six helicopters can detect a submarine (with a probability of 0.5) located in a 50 x 50 km square.

When hunting in sectors apart from ships, helicopters operate as part of a helicopter PUG. In this case the dimensions of the hunt sector depend on the number of helicopters in the group, the submarine's speed and the time from the moment of her detection to the moment of the helicopters' arrival in the vicinity of the target contact.

When a surface ship in a secondary zone of coverage detects a submarine, a helicopter is sent to the area where contact was established (before the target enters the acoustical shadow zone, see sketch). In this case the ship reduces speed to a quiet level and performs search only with passive means. But if the submarine has been detected at a short distance from the ship, it is recommended that the ship attack the target with her own weapons.

Foreign military specialists see three methods for surface ships to attack submarines: from short range, from medium and from long range.

The attack from short range is accomplished with the "Hedgehog," "Limbo," "Terne" or "Bofors" depth charge launchers on the basis of data from ship-board detection facilities. If the ship is operating jointly with a helicopter, the latter must be located beyond the range of action of these weapons.

The "Asroc," "Malafon" or "Ikara" PLURO systems as well as the Mark 44 and 46 homing torpedoes are employed in medium-range attacks. Foreign press reports indicate that such attacks are being practiced during combat training of NATO country navies by surface ships independently and in coordination with ASW helicopters.

In an independent attack, the data for employing ASW ordnance are processed by the ship's onboard facilities. In joint operations with helicopters, data on the relative location, course and speed of the target proceed from the helicopters to the ship's fire control system, which issues the necessary initial data for the employment of ordnance (range and bearing of fire, angle of elevation of rails and so on). In these instances the ship is considered the attacking unit and the helicopter must maintain contact with the target throughout the entire attack. In a repetition of the attack, the ship and helicopter may perform the functions of attacking and supporting units in turn.

An attack from long range is carried out by ship-based ASW helicopters. Two helicopters usually are assigned for this purpose, one of which attacks the submarine while the other (the supporting helicopter) passes the bearing and range to the target to the first helicopter.

While foreign military specialists evaluate the capabilities of surface ships in accomplishing missions of combating the underwater enemy positively on the whole, they have concluded that with the appearance of high-speed, quiet nuclear-powered submarines, ASW groups consisting of surface ships and ASW helicopters have become insufficiently effective formations.

The following are viewed as the primary trends in development of surface ships which provide for an increase in their role in combating submarines: creation of multipurpose ships and outfitting them with contemporary radio-technical facilities for the search, detection and identification of submarines (primarily sonars with towed acoustical antenna arrays), as well as ASW helicopters; and constructing ships with new principles of support on the water (on hydrofoils and on an air cushion).

In the opinion of western military specialists, the realization of these measures also will substantially affect operating tactics of surface ships. It will lead to the appearance of new tactics in their employment as part of escort forces of warship forces and convoys, as well as in carrying out missions of combating submarines in ocean and sea theaters of military operations and on antisubmarine barriers.

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